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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/885,220	06/20/2001	William Kurt Dobson	97-573-A	3203

7590 01/26/2004

EXAMINER
HA, DAC V

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ART UNIT	PAPER NUMBER
2634	

DATE MAILED: 01/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/885,220	DOBSON, WILLIAM KURT	
	Examiner	Art Unit	
	Dac V. Ha	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 June 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claims 1-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (US 6,038,251) in view of Roberton et al. (US 6,031,868) (hereinafter Roberton) and Zheng (US 5,838,744).

Regarding claim 1, Chen discloses a Direct Equalization Method in a modem communication system, which teaches the following claimed subject matter

"a shared communication medium" (Figure 3a, element 100; Figures 3b, 3c, 2a, 2b)

"a plurality of transceiver ... other said transceiver" (Figure 14a, 14c, 14d; Column 3, lines 16-22; Column 5, line 32 to Column 8, line 11)

"a frequency domain equalizer" (Column 3, lines 41-43)

"transmitter transmitting ... non-adjacent carriers," (Column 27, lines 32-50; Column 28, lines 51-59).

Chen differs from the claimed invention in that it does not explicitly teaches the claimed subject matter "receiver having a signal transformer for generating a frequency domain signal from said received time domain signal" and "for operating on said frequency domain." However, Robertson et al. discloses an Asymmetric Digital

Subscriber Loop Transceiver which teaches that it is known in the art to convert received time domain signal to frequency domain signal and then utilize a frequency domain equalizer to operate on such frequency domain signal (Abstract, Column 7, lines 16-38; Figure 2, elements 92', 93', 48' and 49'). Moreover, Zheng discloses a High Speed Modem And Method Having Jitter-Free Timing Recovery which teaches the claimed subject matter "frequency domain equalizer generates ... adjacent carriers" in the Abstract, Column 2, lines 4-8, lines 44-52, Column 3, lines 4-6, Column 4, lines 33-36).

Regarding claim 2, Chen further suggests the teaching of the claimed subject matter "known symbol ... greater than 1" in Column 27, lines 34-48.

Regarding claim 3, Chen and Robertson et al. further suggest the teaching of the claimed subject matter "equalizer generates ... known symbol" as follow. Chen teaches that the filter taps are generated by correlating received transmitted training data with known training data (Claim 3). Robertson et al. teaches that it is known in the art to interpolate the singal point the modem environment (Column 8, lines 37-53; Column 10, lines 1-4).

Regarding claim 4, Chen further suggests the teaching the claimed subject matter "equalizer updates ... averages" in Column 28, line 51 to Column 29, line 27.

Regarding claim 5, Chen further suggests the teaching the claimed subject matter "at least ... modulated carriers" in Column 27, lines 21-22 (Also, see Zheng's reference, Summary).

Regarding claim 6, Chen further suggests the teaching the claimed subject matter "transmitter does not ... frequency range" in Column 1, lines 10-13 and Summary, where Chen does not restrict the application of the disclosure in any environment which use modem.

Regarding claim 7, Chen further suggests the teaching of the claimed subject matter "multi-carrier ... frequencies" in Column 5, lines 6-14, Column 16, lines 13-16, lines 65-67.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate the teaching of transforming the time domain signal to frequency domain signal and utilize a frequency domain equalizer to process the frequency domain signal taught in Robertson et al.'s reference and Zheng's reference into Chen's to provide a frequency domain signal processing that requires less number of operation and structure complexity.

Regarding claim 8, see claim 1 above.

Regarding claims 9 and 10, the claimed subject matter "standard computer internal bus interface" and "standard external bus interface" are obvious options, and well known in the art.

Regarding claim 11, see claim 3 above.

Regarding claim 12, Robertson et al. further teaches the claimed subject matter "signal transformer ... transform" in Figure 2, elements 92' and 48'.

Regarding claim 13, see claim 6 above.

Regarding claim 14, see claim 7 above.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate the teaching of transforming the time domain singal to frequency domain signal and utilize a frequency domain equalizer to process the frequency domain signal taught in Robertson et al.'s reference and Zheng's reference into Chen's to provide a frequency domain signal processing that requires less number of operation and structure complexity.

Regarding claim 15, claim 15 is a method claim which is used to accomplish the tasks in claims 1 or 8, and 2. Thus, claim 15 is also rejected for reason indicated above in claim 1, 8, 2.

Regarding claim 16, see claim 12 above.

Regarding claim 17, see claim 2 above. And the selected integers are optional.

Regarding claim 18, see claim 4 and 14 above.

Regarding claims 19 & 20, the claimed subject matter "the shared communication ... POTS wiring" and "the predetermined points ... every frame" are obvious option and well known in the art.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate the teaching of transforming the time domain singal to frequency domain signal and utilize a frequency domain equalizer to process the frequency domain signal taught in Robertson et al.'s reference and Zheng's reference into Chen's to provide a frequency domain signal processing that requires less number of operation and structure complexity.

Conclusion

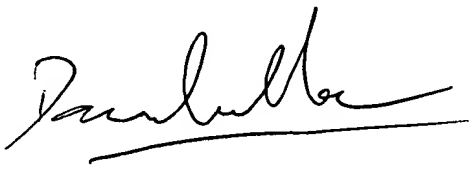
3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Polley et al. (US 5,809,069) disclose a Frequency-Domain Carrierless AM-PM Demodulator.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dac V. Ha whose telephone number is 703-306-5536. The examiner can normally be reached on 5/4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 305-5500.



Dac V. Ha
Examiner
Art Unit 2634